Flight Summary: WB-57F MidCiX – 5 May 2004 - Wave Clouds

The Colorado Front Range looking southeast from west of Fort Collins (top) and a view of two layers of mountain wave cirrus above the Rocky Mountains (bottom).

Purpose of Mission: With the goal of providing a reasonable baseline for the water content probes, mountain-wave cirrus over Colorado were sampled today.

General Information

Flight date – 5 May 2004
Flight description – Flight #8, MidCiX mission
Flight duration – 5.7 hours
Crew – Steve Feaster and Brian Barnett

Flight Summary

The WB-57F successfully sampled thin mountain wave cirrus in north central Colorado. Four to five penetrations of cloud were conducted. The flight was coordinated with the SPEC Learjet piloted by Paul Lawson.

Flight Log

- We took off and climbed up to FL 495, entering a scattered layer at FL 030 at 14:47:50.
- We transited to the cloud location, getting updates from Ice 9, and at 16:42:04, we descended down to FL 390.
- By 16:58, we were flying just over the cloud at FL 390. ATC wouldn't let us get any lower to get in it, however. Initially, the cloud was transparent straight down, but became opaque as you looked about 45 deg off of nadir. Then, by 17:07:30, the cloud was almost opaque, and the ground was barely visible.
- At 17:16:40, we descended down to FL 350 and turned 180 deg to east.
- We intercepted a contrail at 17:20:45.
- At 17:22, we were in the cloud, but looked like we were between two layers initially, then the layer merged into one as we moved east. No halos or turbulence was noted.
- At 17:28:25, we turned back to the west at FL 350, and conducted the MMS maneuvers.
- At 17:36:30, we were back in the cloud heading west.
- At 17:38, we were between two layers again, flying mostly in the bottom of the upper cloud, then at 17:40:17, we were flying in the very top of the lower cloud.
- At 17:43:45, we found ourselves in a middle layer that was almost sub-visible.
- At 17:47:07, we turned back east, with ATC still keeping us at FL 350.
- At 17:50:05, we were back in the top of the lower cloud.
- At 17:55:00, we turned back to the west and descended down to FL 340.
- At 17:58:25, we were in the top of the lower cloud, then descended down to FL 330 at 18:00:40 trying to stay in the cloud, which was just beneath us at FL 330.
- At 18:04:10, we turned east at FL 330 and were flying between two layers again.

- At 18:07:03, we were in the top of the lower cloud until 18:08:23, at which point we climbed up to FL 350 to try and get in the upper cloud because the lower one dissipated.
- At 18:09:02, we were briefly in the base of the upper layer.
- At 18:10:40, we started to RTB, and passed through clouds on the climb up at FL 360 and then more at FL 380 at 18:11:50.
- We continued the climb up to FL 495 for the transit home.
- At 18:19, light turbulence was noted at FL 480. This was the most turbulence we had seen all day, and was not associated with any clouds.

Take off	1446 UTC	**Landing**	2030 UTC

Instrument Failures/Notes/Times

- CIN was turned on on the ramp at 14:07:10, and the bag was taken off at 14:12:45.
- MMS Box: 17:29:33 – 17:32:58, Mach .56
- MMS Pitch: 17:33:06 – 17:33:35, Mach .52
- MMS Yaw: 17:33:42 – 17:34:00, Mach .52
- Landing gear up right after takeoff. Gear down and spoilers open at 19:54:05. Gear up and spoilers closed at 19:59:30. Spoilers out 20:15:50. Gear down at 20:27.

Instruments flown: Full Compliment
Preliminary Instrument Notes:
Appears Good: JLH, CSI, CPI, NEV, SPP, Harvard TW, Harvard WV, CLH, CIN, VIPS, PIP/2DP
Problems: MMS – lost primary INS during the second half of flight.

Nav Data Information

- Nav data is uploaded to the MidCiX website.

Compiled by Brian Barnett and Jay Mace